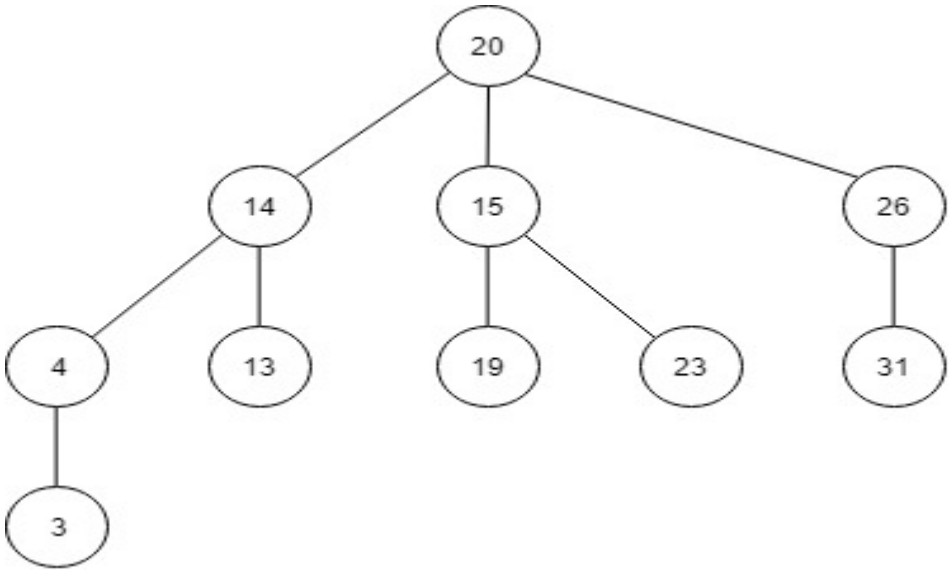
8. Lucia

Program Name: Lucia.java **Input File: lucia.dat**

Lucia just learned about binary trees and thinks it would be cool to make a tri-tree. This is similar to a binary tree, but instead of each node having two possible branches, each node can have up to three branches. Lucia decides to make this tree with numbers, where values over 5 less than the current number go to the left, and values over 5 greater than the current number go to the right. Remaining numbers including duplicates go down the middle.

Here is an example, given the numbers 20, 15, 14, 26, 13, 4, 3, 23, 19, and 31 inserted in order, resulting in the tree shown below.

Your job is to create the tree and then traverse the resulting pre-order and post-order sequence. Pre-order is root, left, middle, right; post-order is left, middle, right, root.



Preorder traversal is: 20 14 4 3 13 15 19 23 26 31
Postorder traversal is: 3 4 13 14 19 23 15 31 26 20

Input: A single list of integers all on one line, with single space separation. **There will be only one data set for this problem.**

Output: Pre-order traversal on one line followed by post-order traversal on the next line, in the exact format as shown below.

Sample Input:
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20 15 14 26 13 4 3 23 19 31
```

Sample Output:
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Preorder: 20 14 4 3 13 15 19 23 26 31
Postorder: 3 4 13 14 19 23 15 31 26 20
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